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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/800,917	03/05/2001	Hossein Izadpanah	HRL080	5536

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EXAMINER	
SEDIGHIAN, REZA	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/800,917	IZADPANAH ET AL.	
	Examiner	Art Unit	
	M. R. Sedighian	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 October 2005* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. This communication is responsive to applicant's response of 10/7/05 in the application of Izadpanah et al. for "Hybrid RF and optical wireless communication link and network structure incorporating it therein" filed 3/5/01. Claims 1-51 are now pending.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-16, 18-24, 29-40, 42-46, and 49 are rejected under 35 U.S.C. 102(e) as being anticipated by Willebrand et al. (US Patent No: 6,763,195).

Regarding claim 1, Willebrand teaches a node (20, fig. 3) incorporating hybrid radio frequency and optical wireless communication links (26, 28, fig. 3), the node comprising: at least one laser portion (56, fig. 3) for transmitting data (col. 8, lines 32-55); at least one radio frequency portion (58, fig. 3) for transmitting data; a data receiver (60, fig. 3) for receiving data from a data source (col. 8, lines 32-55); and a controller (62, fig. 3) configured to receive data from a data source and connected with the laser portion and the radio frequency portion to allocate portions of the data to be transmitted through the laser portion and the radio frequency portion (col. 10, lines 43-47, col. 13, lines 51-65).

Regarding claims 2 and 8, Willebrand teaches the controller is configured as a binary switch such that the data is transmitted exclusively through either one of the laser portion or radio frequency portion (col. 13, lines 51-58, col. 15, lines 36-40 and 124, fig. 5).

Regarding claims 3-4, 7, and 9, Willebrand teaches the controller is configured to receive environmental information and wherein the portions of the data to be transmitted through the laser portion and the radio portion are adjusted by the controller based on the environmental information (col. 2, lines 31-45, col. 10, lines 18-20, col. 11, lines 63-67, col. 12, lines 1-13).

Regarding claim 5, Willebrand teaches the laser portion is configured to both transmit and receive and wherein the radio frequency portion is configured to both transmit and receive (col. 6, lines 28-30, col. 10, lines 14-16).

Regarding claims 6, 13, and 16, Willebrand teaches the laser portion and the radio frequency portion are configured to transmit in multiple channels (col. 1, lines 23-35, col. 5, lines 19-21, col. 6, lines 27-31 and fig. 2).

Regarding claims 10, 12, and 14, Willebrand teaches the laser portion and the radio frequency portion have transmit and receive strength, and wherein the controller is configured to monitor the transmit and receive strengths, and wherein the portions of the data to be transmitted through the laser portion and the radio frequency portion are adjusted by the controller based on their transmit and receive strengths (col. 13, lines 55-65, col. 14, lines 49-64).

Regarding claim 11, Willebrand teaches the controller includes a plurality of latches and a logic device, wherein the plurality of latches and logic device operate to provide adjustment levels for the portions of the data to be transmitted through the laser portion and the radio frequency portion (col. 14, lines 46-67, it is well known that a controller can include latches and logic devices to provide control and adjustment functions).

Regarding claim 15, Willebrand teaches the laser portion and the radio frequency portion are configured to transmit and receive in tandem, whereby the node may be configured to

provide a hybrid serial link to permit tailored radio frequency or optical network connections (col. 4, lines 58-67, col. 5, lines 1-21).

Regarding claim 18, Willebrand teaches a network (20, fig. 1) of plurality of nodes (22, 24, fig. 1), wherein each node (22, figs. 1, 3) includes: at least one laser portion for transmitting data (56, fig. 3); at least one radio frequency portion for transmitting data (58, fig. 3); a data receiver for receiving data from a data source (60, fig. 3); and a controller (127, fig. 5) configured to receive data from a data source and connected (72, fig. 3) with the laser portion (56, fig. 3) and the radio frequency portion (80, 58, fig. 3) to allocate portions of the data to be transmitted through the laser portion or the radio frequency portion (col. 14, lines 54-64).

Regarding claims 19, 32, and 43, Willebrand teaches the controller of each node is configured as a binary switch such that the data is transmitted exclusively through either one of the laser portion or the radio frequency portion (col. 13, lines 51-58, col. 15, lines 36-40 and 124, fig. 5).

Regarding claims 20-21, 29, 33, 42 and 45, Willebrand teaches the controller of each node is configured to receive environmental information, and wherein the portion of data to be transmitted through the laser portion or the radio frequency portion are adjusted by the controller based on the environmental information (col. 2, lines 31-45, col. 10, lines 18-20, col. 11, lines 63-67, col. 12, lines 1-13). As to claims 29 and 42, it further requires similar limitations, as recited in claim 18 above.

Regarding claims 22, 30, 34, 36, 38, and 44, Willebrand teaches the laser portion and the radio frequency portion of each node have transmit and receive strengths and wherein the controller is configured to monitor the transmit and receive strengths, wherein the portions of the

data to be transmitted through the laser portion and the radio frequency portion are adjusted by the controller based on their transmit and receive strengths (col. 13, lines 55-65, col. 14, lines 49-64).

Regarding claims 23, 31, 37, 40, and 46, Willebrand teaches the laser portion and the radio frequency portion of each node are configured to transmit in multiple channels (col. 1, lines 23-35, col. 5, lines 19-21, col. 6, lines 27-31 and fig. 2).

Regarding claims 24, 39, and 49, Willebrand teaches the laser portion and the radio frequency portion are configured to transmit and receive in tandem, whereby the node may be configured to provide a hybrid serial link to permit tailored radio frequency or optical network connections (col. 4, lines 58-67, col. 5, lines 1-21).

Regarding claim 35, Willebrand teaches the controller includes a plurality of latches and a logic device, wherein the plurality of latches and logic device operate to provide adjustment levels for the portions of the data to be transmitted through the laser portion and the radio frequency portion (col. 14, lines 46-67, it is well known that a controller can include latches and logic devices to provide control and adjustment functions).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 5, 6, 15, 16, 18, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perdue et al. (US Patent No: 6,529,556) in view of Taglione et al. (US Patent No: 5,966,225), or Nakamura (US Patent No: 6,583,908).

Regarding claims 1 and 18, Perdue teaches a node (10, fig. 1) incorporating hybrid radio frequency and optical wireless communication links (col. 2, lines 50-55), the node comprising: an IR portion (16, fig. 1) for transmitting data (col. 2, lines 15-17); a RF portion (17, fig. 1) for transmitting data (col. 2, lines 15-17); a data receiver (20, fig. 1) for receiving data from a data source (col. 2, line 16, col. 4, lines 10-17); and a controller (14, fig. 1) configured to receive data from a data source (20, fig. 1) and connected with the IR portion and the RF portion to allocate portions of the data to be transmitted through the IR portion and the RF portion (col. 2, lines 14-19, col. 5, lines 39-47 and 70, 72, fig. 4). Perdue differs from the claimed invention in that Perdue does not specifically disclose the IR portion is a laser. However, Perdue further teaches any one of a number of conventionally known IR transmitter arrangement may be used (col. 5, lines 23-25). It is well know to incorporate a laser for transmitting data signal, as such concept is taught by Taglione and Nakamura. Taglione teaches an IR transceiver (100, fig. 3 and col. 3, lines 47-56), wherein the IR emitter (108, fig. 3) can be a laser diode (col. 3, lines 53-54). Nakamura teaches infrared transmission/reception units (6a, 6b, 6c, figs. 1a, 1b and fig. 2) to transmit and receive light when performing data communication by a computer (col. 3, lines 3-10 and 1, fig. 2). Nakamura further teaches laser light may be used for the infrared transmission/reception unit (col. 5, lines 10-15). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a laser transmitter, as it

is taught by Taglione or Nakamura, for the IR portion in the data transmission system of Perdue to generate a uniform, narrow, and relatively high power output light.

Regarding claims 5, Perdue teaches the IR portion is configured to both transmit and receive and the RF portion is configured to both transmit and receive (col. 2, lines 51-55, col. 9, lines 8-24, col. 10, lines 13-34).

Regarding claims 6 and 23, Perdue teaches the IR portion and the RF portion are configured to transmit and receive in multiple channels (col. 6, lines 23-34 and 76, 78 and 80, 82, fig. 5).

Regarding claims 15 and 24, Perdue teaches the IR portion and the RF portion are configured to transmit and receive in tandem (col. 2, lines 15-19).

Regarding claim 16, Perdue teaches the IR portion and the RF portion are configured to transmit and receive in multiple channels (col. 6, lines 23-34 and 76, 78 and 80, 82, fig. 5).

6. Claims 10, 12, 14, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perdue et al. (US Patent No: 6,529,556) in view of Taglione et al. (US Patent No: 5,966,225), or Nakamura (US Patent No: 6,583,908) and in further view of Vollert (German Patent No: DE 44 33 896 C1).

Regarding claims 10, 12, 14, and 22, the modified data transmission system of Perdue and Taglione, or Nakamura differs from the claimed invention in that Perdue and Taglione, or Nakamura do not disclose the controller is configured to monitor the transmit and receive strengths. Vollert teaches bi-directional transmission and reception of information over radio link (FUS, fig. 1) or optical link (IUS, fig. 1) based on verification of the transmission quality of

different paths (translation page 5, last paragraph and page 6, first paragraph) by a controller (PST, fig. 1) and switching (translation page 6, lines 10-12) from one link to the other based on the evaluation and measurement results (translation page 6, lines 3-18). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate a controller such as the one of Vollert for the controller in the modified data transmission system of Perdue and Taglione to verify the transmission quality of the transmission paths.

7. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perdue et al. (US Patent No: 6,529,556) in view of Taglione et al. (US Patent No: 5,966,225), or Nakamura (US Patent No: 6,583,908) and in further view of Vowell et al. (US Patent No: 5,999,295), or Shibuya (US patent No: 6,509,991).

Regarding claim 11, the modified optical transmission system of Perdue and Taglione, or Nakamura differs from the claimed invention in that Perdue and Taglione, or Nakamura do not disclose the controller includes a plurality of latches and a logic device to further provide adjustments levels for the portions of data to be transmitted. Vowell teaches an IR transceiver module that includes an IR transmitter and receiver and a communication logic that is coupled to the transceiver to control communication (col. 3, lines 5-8), wherein the communication logic includes state machines, buffers, latches, registers, memories, etc (col. 3, lines 8-10). Likewise, Shibuya teaches a transmit and receive control unit (10, fig. 6) that is comprised of latches (59, 60, 61, fig. 6) and logic devices (62, 63, fig. 6). Therefore, it would have been obvious to a person of ordinary skill in the art at time of invention that a controller such as the one of Perdue

can include latches and logic devices, as it is taught by Vowell or Shibuya, to provide monitoring and control functions.

Regarding claim 13, Perdue teaches the IR portion and the RF portion are configured to transmit in multiple channels (col. 6, lines 23-34 and 76, 78 and 80, 82, fig. 5).

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perdue et al. (US Patent No: 6,529,556) in view of Taglione et al. (US Patent No: 5,966,225), or Nakamura (US Patent No: 6,583,908) and in further view of Driessen (US Patent No: 5,936,578).

Regarding claim 17, the modified optical transmission system of Perdue and Taglione, or Nakamura differs from the claimed invention in that Perdue and Taglione, or Nakamura do not disclose an optical reflector to deflect transmission from the IR portion to work around the fixed objects. Driessen teaches an optical transmission system (fig. 6), wherein an optical reflector is used to deflect transmission from a laser portion to work around fixed objects (col. 6, lines 1-7). As it is taught by Driessen, it would have been obvious to an artisan at the time of invention to incorporate an optical reflector, when transmitting data signals over a free space as it is taught by Perdue, to provide a deflection for signal transmission around the fixed objects to further continue signal transmission without interruption.

9. Claim 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perdue et al. (US Patent No: 6,529,556) in view of Taglione et al. (US Patent No: 5,966,225), or Nakamura (US Patent No: 6,583,908) and in further view of Medved et al. (US Patent No: 5,818,619), or Bloom (US Patent No: 6,323,980).

Regarding claims 25-28, the modified data transmission system of Perdue and Taglione, or Nakamura differs from the claimed invention in that Perdue and Taglione, or Nakamura do not disclose a portion of the network is configured with a ring topology, or a SONET ring. However, it would have been obvious to a person of ordinary skill in the art that a wireless data transmission system such as the one of Perdue can be incorporated to a ring network to provide and share the information in a network. Furthermore, Medved teaches wireless communication systems (80, 82, 84, fig. 5) can be applicable to any type of network such as ring network (col. 1, lines 35-40). Bloom teaches optical transceivers (10, fig. 2) and RF transceiver (13, fig. 2) can be used in a network with a SONET format (col. 5, lines 30-45). Therefore, it would have been obvious to an artisan at the time of invention to incorporate a wireless data transmission system such as the one of Perdue in a ring network as it is taught by Medved, or in a SONET ring as it is taught by Bloom, in order to provide and share information between other wireless devices on a network.

10. Applicant's arguments with respect to claims 1-28 (previously rejected by Willebrand et al. US Patent Publication No: 2004/0037566 A1) have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 10/7/05 with respect to references of Perdue and Taglione have been fully considered but they are not persuasive.

Remark states the combination of Perdue and Taglione does not teach all of the limitations of claims 1 and 18. Applicant states the combination does not teach, disclose, or suggest "a controller configured to receive data from a data source and connected with the laser

portion and the radio frequency portion to allocate portions of the data to be transmitted through the laser portion and the radio frequency portion". As discussed above in rejections of claims 1 and 18, Perdue teaches a controller 14 that receives data from a data receiver input device 20 which receives data from a data source such as a keypad (col. 2, lines 13-16, col. 4, lines 14-17), and wherein controller 14 generates appropriate signal format in response to data received, and applies that signal format to both an IR transmitter and a RF transmitter (col. 2, lines 16-19). Accordingly, Perdue teaches the limitations such as a controller that is configured to receive data from a data source and connected with an IR portion and a radio frequency portion to allocate portions of the data to be transmitted through the IR portion and the radio frequency portion, as recited in claims 1 and 18. As it is shown in figures 1 and 4 of Perdue, controller 14 can allocate portions of data to IR transmitter 16 and RF transmitter 17. Figure 4 shows portions of data transmitted by the IR transmitter during time interval 70, and portions of data transmitted by the RF transmitter during the time interval 72. Therefore, controller 14 can allocate portions of data for transmission by the IR and RF transmitters. In response to applicant's argument that the Perdue patent fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., transmitting **only a portion of data** through the radio signal sending circuit **or** the IR sending circuit.) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Remark further states the proposed modification of combining the prior art of Perdue, which require low power IR signal transmission, with the prior art taught by Taglione, which have a relatively high power transmission by using a laser during optical transmission, would change

the principle of operation of the Perdue patent. However, Perdue teaches any one of a number of conventionally known IR transmitter and IR receiver arrangement may be used in the present invention (col. 5, lines 23-25). Taglione teaches an IR emitter (108, fig. 3) such as an LED, or a laser diode can be used as a medium band IR emitter in a data transceiver (col. 3, lines 47-55). It would have been obvious to a person of ordinary skill in the art that such an IR emitter laser can be used for the IR transmitter of Perdue for generating a uniform, narrow, and high power output light. Remark further states Perdue patent discloses an IR transmitter that includes an LED coupled to a driver circuit, which is controlled by a controller, wherein the LED is driven by a low power source and that emits a low power output. However, Perdue patent does not disclose such recitation that an LED is driven by a low power source and LED emits a low power output. Furthermore, Nakamura is used in this rejection to teach that laser light can be used for transmitting data, when using data entry into a computer (Nakamura, col. 3, lines 3-11). As to declaring an interference between the present application and the US patent application No: 10/646,994 to Willebrand et al., an interference can not be declared at the present time because the present application is not in condition for allowance.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. R. Sedighian

M. R. SEDIGHIAN
PRIMARY EXA[illegible]ER